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1 RECORD OF ORAL HEARING  
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3 UNITED STATES PATENT AND TRADEMARK OFFICE  
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5  
6 BEFORE THE BOARD OF PATENT APPEALS  
7 AND INTERFERENCES  
8

9  
10 Ex parte SHUNPEI YAMAZAKI,  
11 JUN KOYAMA, and YU YAMAZAKI  
12

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14 Appeal 2009-0918  
15 Application 09/833,674  
16 Technology Center 2600  
17

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19 Oral Hearing Held: March 17, 2009  
20  
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22  
23 Before JOSEPH F. RUGGIERO, MAHSHID D. SAADAT,  
24 and MARC S. HOFF, Administrative Patent Judges  
25

26 ON BEHALF OF THE APPELLANTS:  
27

28 HUSSEIN AKHAVANNIK, ESQUIRE  
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32

33 The above-entitled matter came on for hearing on Tuesday, March 17,  
34 2009, commencing at 1:29 p.m., at the U.S. Patent and Trademark Office,  
35 600 Dulany Street, Alexandria, Virginia, before Dawn A. Brown, Notary  
36 Public.  
37

1 THE USHER: Calendar Number 17, Appeal Number 2009-0918.

2 Mr. Akhavannik.

3 MR. AKHAVANNIK: Good morning.

4 JUDGE RUGGIERO: Do you want to spell your name for the  
5 reporter?

6 MR. AKHAVANNIK: It is Hussein, H-U-S-S-E-I-N. That is my first  
7 name. And my last name is Akhavannik, A-K-H-A-V-A-N-N-I-K. It looks  
8 harder than it is.

9 I'm ready whenever you are.

10 JUDGE RUGGIERO: Go ahead.

11 MR. AKHAVANNIK: Good morning, Your Honors. My name is  
12 Hussein Akhavannik, and I represent the appellant, Semiconductor Energy  
13 Laboratory.

14 The appellant has appealed the rejection of independent claims 1, 7,  
15 35, 43, 51, 57, 85 and 93, and their respective dependent claims over the  
16 combination of Ritter, Harkin and Tang. In addition to the new reference  
17 that is being applied by the examiner first introduced in the examiner's  
18 answer, which is Tang as a teaching reference for teaching inherency.

19 The independent claims, I won't go through numbering them again, all  
20 recite similar features. In particular, they each recite the feature of a display  
21 device having pixels, each of which includes a light-emitting element and a  
22 sensor for reading biological information of a user.

23 And near the end of the claim there is a wherein clause in each of the  
24 independent claims that states that the light-emitting element comprises a  
25 cathode, a light-emitting layer, and an anode.

26

1           An example structure is shown in the specification wherein a pixel  
2 includes both a light-emitting element and a sensor. In figure 8, there is  
3 element 106, which is a light-emitting element, and element reference  
4 number 113, which represents a photodiode as a sensor element.

5           The photodiode is actually claimed in claims 109 through 116 as  
6 dependent claims for your information as possible types -- as a type of a  
7 sensor.

8           Flipping through the application, we get to start at figure 11A. There  
9 are ten steps being shown starting from figure 11A through figure 13C,  
10 which show the processing required to have a pixel including both the sensor  
11 and the light-emitting element.

12           Figure 13C, which is kind of a culmination of all the steps, shows the  
13 reference number 784, for example, as a photodiode, and reference number  
14 786 as a light-emitting element.

15           Another example, just for your information, is figure 14B which  
16 shows the photodiode 4201, which is the reference number, and the light-  
17 emitting element 4202.

18           JUDGE SAADAT: Counsel, none of these processes are different  
19 from what is common in the industry for manufacturing photodiodes or  
20 light-emitting elements, correct?

21           MR. AKHAVANNIK: Actually, I disagree, Your Honor. For  
22 example, as Tang shows, there is some processing being shown to create a  
23 light-emitting device. But again, as that reference shows, creation or  
24 processing to create light-emitting elements as LEDs in and of themselves  
25 was well known within the industry.

26

1           However, the processing being shown in figures 11A to 13C is  
2           actually quite different. It shows two different types of elements being  
3           created. You have a light-emitting element and you have a photodiode, both  
4           of which have slightly different structure. And so, all those steps are  
5           required to create both of those elements.

6           JUDGE SAADAT: I appreciate your explaining the process, but  
7           based on your brief, your argument was based on the fact that undue  
8           experimentation is needed to substitute the liquid crystal display in Harkin  
9           with a photo-luminous display. So what is the undue experimentation that  
10          you are referring to?

11          MR. AKHAVANNIK: That is a great question, Your Honor. It is  
12          exactly those ten steps that we show in figures 11A through 13C. The undue  
13          experimentation would be to create the processing to have the structure that  
14          has a photodiode and a sensor in the same pixel.

15          Harkin, it doesn't even describe light-emitting devices; it describes or  
16          kind of a suggestion to do so, which is exactly, as we point out in the MPEP,  
17          is just a mere naming of a possibility for doing so. And the undue  
18          experimentation would result in having to create the process for creating the  
19          structure that we're claiming.

20          There is -- I can give a few examples of differences even just in the  
21          teaching reference Tang, which was provided, and in Harkin on why  
22          between those two references which have been cited there is going to be  
23          some experimentation required to get there. I don't know if you want me to  
24          walk through those or not.

25          JUDGE SAADAT: Not specifically. But the elements that are in the  
26          claim, just broadly recited, are a light-emitting element with each pixel and

1 specifically a light-emitting layer and an anode for the light-emitting  
2 element.

3 We assume that the rest of the elements are probably processed with  
4 no conventional methods that one of ordinary skill in the art would have  
5 known or would have obviously been able to put together. So what is it  
6 about using a photo or photo-luminous layer of a liquid crystal layer that  
7 requires the undue experimentation?

8 MR. AKHAVANNIK: To go from one to the other is going to require  
9 a completely different processing.

10 As you know, the liquid crystal devices only have a single -- or, in  
11 fact, Harkin specifically explains that you either have no light-emitting  
12 element in liquid crystal displays -- you can use ambient light to show that --  
13 or you have a backlight, which is probably the screens you're using there,  
14 that would provide the light emission.

15 In LEDs, you have a light emission element in every single pixel. But  
16 what is required with this claim is that that same pixel also requires a sensor  
17 to be able to detect. And to be able to come up with processing to do so  
18 requires undue experimentation.

19 JUDGE SAADAT: And this undue experimentation is beyond what  
20 one of ordinary skill in the art would have known with respect to putting or  
21 adding whatever circuit is needed to make it work? Because, definitely there  
22 is a little bit of adjustment needed but would that be beyond the knowledge  
23 of ordinary skill in the art?

24 MR. AKHAVANNIK: I understand we're standing here in 2009  
25 talking about all the things, you know, as you see the two displays in front of  
26

1 you, liquid LED elements and liquid crystal elements have become much  
2 more propagated.

3 In 2001 when this application was filed in the U.S., the applicant  
4 believes that there was need for undue experimentation to have to create an  
5 LED structure that also has a sensor within each pixel, and that is why they  
6 have those ten separate steps to do so.

7 Any other questions?

8 JUDGE SAADAT: No more questions.

9 JUDGE HOFF: I have nothing further.

10 JUDGE SAADAT: I don't have any.

11 JUDGE RUGGIERO: Okay.

12 MR. AKHAVANNIK: Thank you for your time.

13 (Whereupon, the proceedings at 1:38 p.m. were concluded.)